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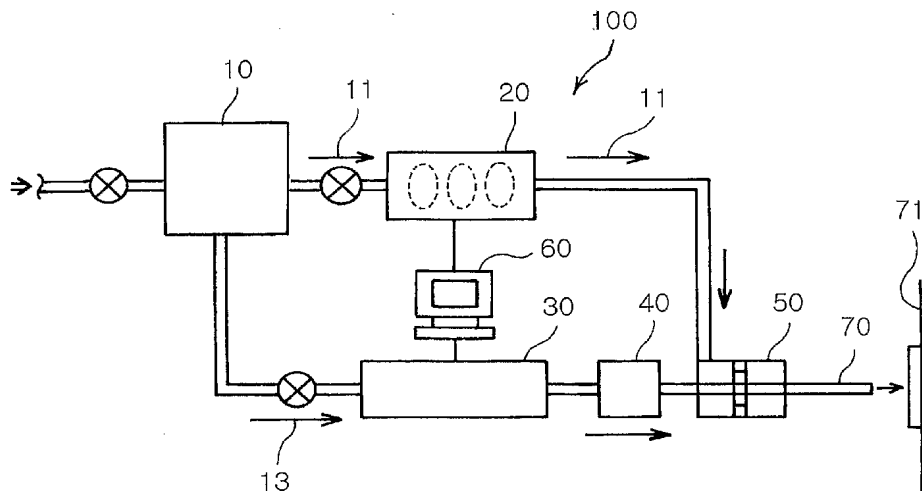
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(54) Title: COLD SPRAY APPARATUS HAVING POWDER PREHEATING DEVICE



(57) Abstract: There is provided a cold spray apparatus having a powder preheating device, capable of obtaining high deposition rate and excellent coating layer under the same spray processing conditions by preheating coating powder before a coating process. Also, there is provided a manufacturing method of nano-structured super-high hardness WC-Co coating having high abrasive wear resistance and fracture toughness by spraying WC-Co powder using the cold spray apparatus. In the cold spray apparatus, a gas controller controls gas supply amount of main gas and residual gas (gas that is not supplied toward the main gas), and a gas heater heats the main gas supplied under the control of the gas controller. A powder feeder receives the residual gas under the control of the gas controller and supplies a coating powder together with the residual gas. A powder preheating device preheat the coating powder supplied from the powder feeder, and a mixing chamber mixes the heated main gas with the preheated coating powder. A temperature controller adjusts temperature by controlling the powder preheating device and the gas heater, and the coating powder mixed in the mixing chamber is sprayed through a nozzle.

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